

Overview of the Six Kingdoms

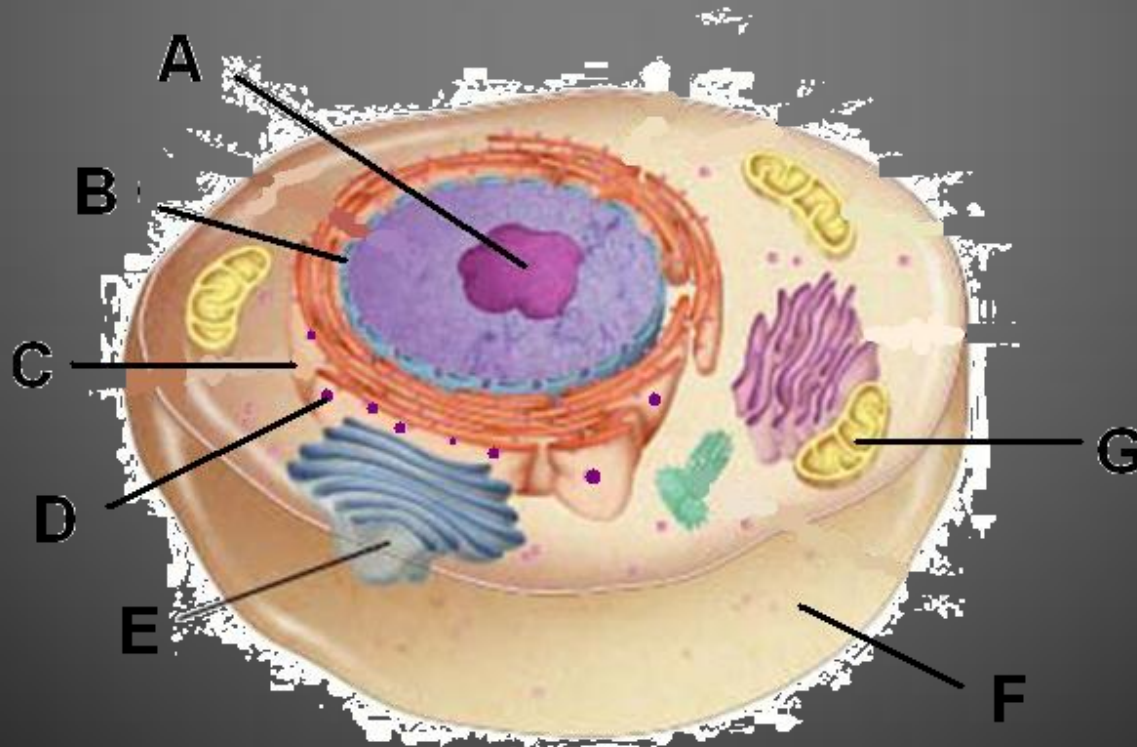
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What is Cell Type?

- Prokaryotic – describes an organism with cells that do NOT have a nucleus
- Eukaryotic – describes an organism with cells that do have a nucleus

What is Cellular Organization?

- Multicellular – organisms are made up of more than one cell
- Unicellular – organisms are made up of one cell



What is Mode of Nutrition?

- Autotrophic – makes its own food
- Heterotrophic – gets nutrients from the food it consumes

List of the 3 Domains & 6 Kingdoms

Domain Archaea	Domain Bacteria	Domain Eukarya
Kingdom Archaeobacteria	Kingdom Eubacteria	Kingdom Protista Kingdom Fungi Kingdom Plantae Kingdom Animalia

Kingdom Archaeobacteria

“extreme bacteria”

- **Cell Type** – Unicellular
- **Cellular Organization** – Prokaryotic
- **Mode of nutrition** – Autotrophic or Heterotrophic
 - Means that some species are autotrophs and some are heterotrophs

Kingdom Archaeobacteria

Characteristics

- **Reproduction** – asexual
- **Cell Wall** – cell walls without peptidoglycan
- **Habitat** – live in extreme habitats such as hot springs, geysers, volcanic hot pools, brine pools, black smokers

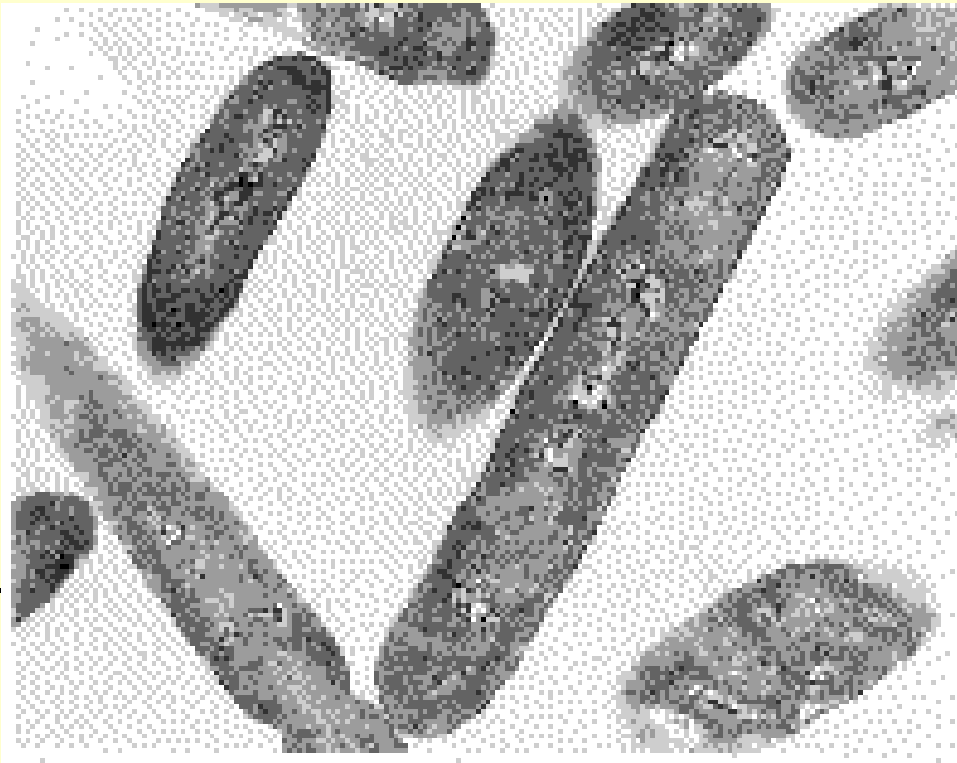
Kingdom Archaeobacteria



Morning Glory Pool in Yellowstone National Park – note the bright colors from the archaeobacteria growing in the extremely hot water.

Kingdom Archaeobacteria

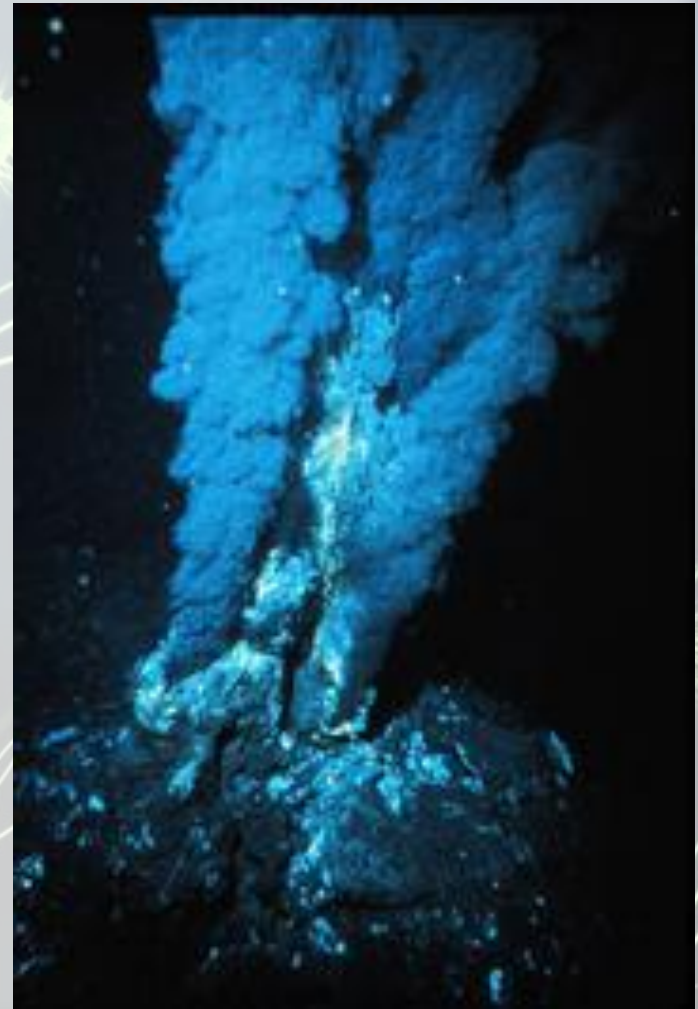
Henry C. Aldrich/Univ. of Florida



*Some like it hot: Cells of
Bacillus infernus.*

Kingdom Archaeobacteria

- Archaeobacteria can live deep in the ocean near geothermal vents called black smokers
- There is no light, so they carry out chemosynthesis instead of photosynthesis

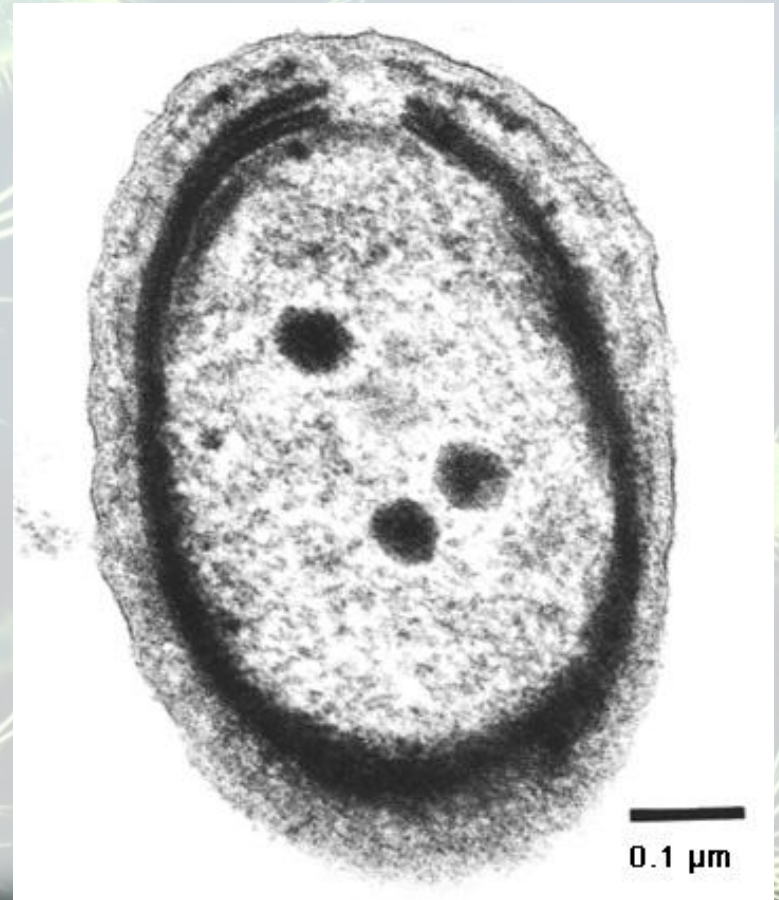


Kingdom Eubacteria

- **Cell Type** – Prokaryotic
- **Cellular Organization** – Unicellular
- **Mode of nutrition** – Autotrophic or heterotrophic
- **Reproduction** – asexual
- **Cell Wall** – Thick cells walls with peptidoglycan
- **Habitat** – everywhere!!! (even inside you)

Kingdom Eubacteria

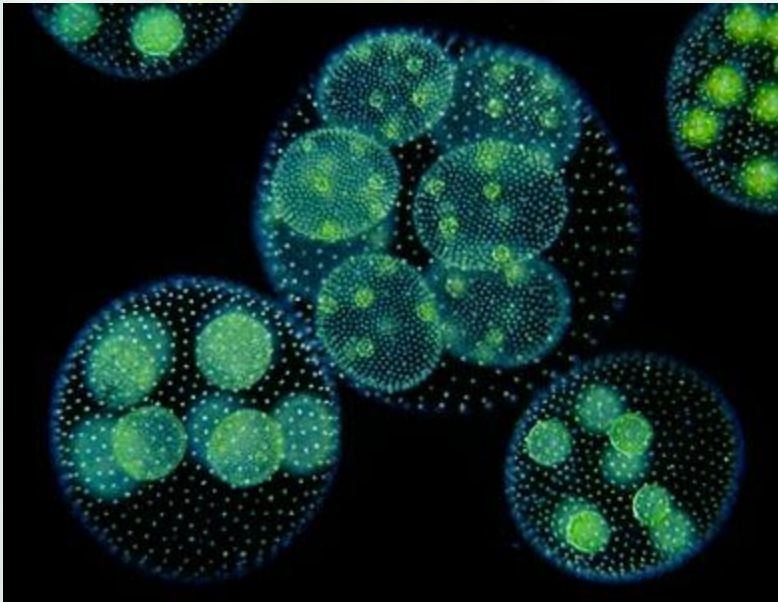
- Prochlorococcus – an autotrophic bacterium



Kingdom Protista: “Catch All Kingdom”

- **Cell Type** – Eukaryotic
- **Cellular Organization** – Most unicellular, some multicellular
- **Mode of Nutrition** – Autotrophic and heterotrophic
- **Reproduction** – sexual and asexual
- **Cell Wall** – Some with cell walls containing cellulose
- **Habitat** – all aquatic

Kingdom Protista



Volvox – a colonial protist



A slime mold



Euglena – autotrophic



Amoeba – heterotrophic

Kingdom Fungi

- **Cell Type** – Eukaryotic
- **Cellular Organization** – Most multicellular
- **Mode of Nutrition** –heterotrophic
(decomposers)
- **Reproduction** – sexual and asexual
- **Cell Wall** –cell walls containing chitin
- **Habitat** – terrestrial

Kingdom Fungi



Stilton cheese



Bread mold



Kingdom Plantae

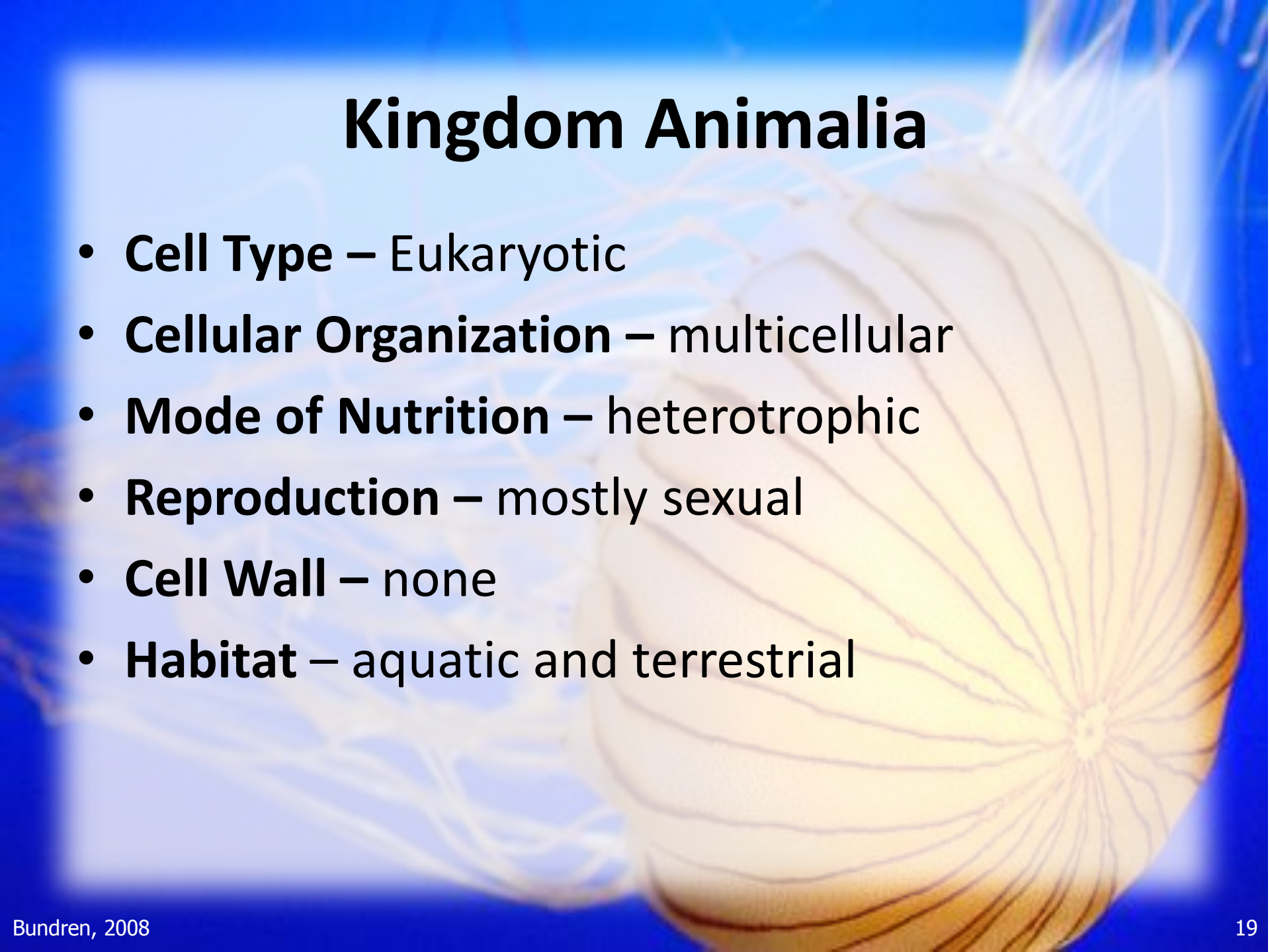
- **Cell Type** – Eukaryotic
- **Cellular Organization** – multicellular
- **Mode of Nutrition** – Autotrophic
- **Reproduction** – sexual
- **Cell Wall** – cell walls containing cellulose
- **Habitat** – aquatic and terrestrial

Kingdom Plantae



Kingdom Animalia

- **Cell Type** – Eukaryotic
- **Cellular Organization** – multicellular
- **Mode of Nutrition** – heterotrophic
- **Reproduction** – mostly sexual
- **Cell Wall** – none
- **Habitat** – aquatic and terrestrial



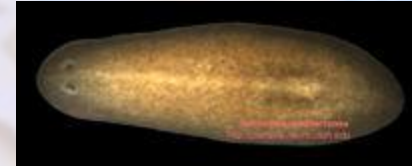
Kingdom Animalia



Sponge



Jellyfish



Flatworm



Coral snake



Bear



Octopus